

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for determining an optimal channelization code for assignment to a channel in a Universal Mobile Telecommunication System (UMTS), said method comprising the steps of:

extending ~~the~~ a plurality of channelization codes in the form of a tree structure having a plurality of sub-trees;

determining if a flag of at least one of a plurality of channelization code numbers corresponding to respective channelization codes of ~~a~~the plurality of channelization codes should be set or released;

receiving a spreading factor, if it is determined that the flag of the at least one of the plurality of channelization code numbers should be set;

~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code using the spreading factor and the tree structure, comprising the steps of:

generating and assigning a channelization code number for the optimal channelization code; and

setting the flag of at least the generated channelization code number, ~~thereby setting the flag for the at least one of the plurality of channelization code numbers which includes~~by setting the flag of a channelization code number corresponding to the optimal channelization code and setting the flags corresponding to channelization code numbers assigned to a particular sub-tree of the tree structure.

2. (Original) The method according to Claim 1, further comprising the steps of:

receiving the spreading factor and at least one channelization code number, if it is determined that the flag of the at least one of the plurality of channelization code numbers should be released; and

releasing the flag of the at least one of the plurality of channelization code numbers.

3. (Original) The method according to Claim 2, further comprising the step of maintaining at least one flag corresponding to one or more channelization code numbers of the plurality of

channelization code numbers set.

4. (Original) The method according to Claim 3, wherein the one or more channelization code numbers are assigned to one or more channelization codes located above at least one channelization code corresponding to the at least one of the plurality of channelization code numbers in the tree structure.

5. (Cancelled)

6. (Currently Amended) The method according to Claim 51, wherein a root branch of the particular sub-tree is assigned the generated channelization code number.

7. (Currently Amended) The method according to Claim 51, wherein the step of setting the flag of the generated channelization code number comprises the step of setting at least one flag corresponding to at least one channelization code number assigned to at least one branch above the particular sub-tree in the tree structure.

8. (Currently Amended) The method according to Claim 1, wherein the step of ~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code comprises the steps of:

checking a flag corresponding to an optimum channelization code number of the plurality of channelization code numbers;

determining whether a channelization code of the plurality of channelization codes which corresponds to the checked flag is available; and

identifying the channelization code as the optimal channelization code and proceeding to the step of generating and assigning the channelization code number for the optimal channelization code, if it is determined that the channelization code which corresponds to the checked flag is available.

9. (Original) The method according to Claim 8, further comprising the step of generating a message indicating that there is no available channelization code of the plurality of channelization

codes, if it is determined that the channelization code which corresponds to the checked flag is unavailable.

10. (Currently Amended) The method according to Claim 1, wherein the step of ~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code comprises the steps of:

- determining a sub-tree having the maximum value according to a sub-tree value system;
- starting from the sub-tree having the maximum value, checking whether a channelization code of the plurality of channelization codes and corresponding to the spreading factor can be assigned to the sub-tree; and
- identifying the checked channelization code as the optimal channelization code if the checked channelization code can be assigned.

11. (Original) The method according to Claim 1, further comprising the steps of:

- determining if there is at least one additional channelization code of the plurality of channelization codes to be assigned to at least one additional sub-tree; and
- checking at least one additional subsequent sub-tree having the next maximum value according to the sub-tree value system, if it is determined that there is at least one additional channelization code to be assigned.

12. (Currently Amended) The method according to Claim 1, wherein the step of ~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code comprises the steps of:

- determining if there is at least one pair of channelization codes of the plurality of channelization codes in a particular sub-tree of the tree structure which can be assigned in pair; and
- assigning channelization code numbers to any determined pair of channelization codes.

13. (Original) The method according to Claim 12, further comprising the steps of:

- checking the flag corresponding to the minimum channelization code number of the

plurality of channelization code numbers and to the spreading factor, if it is determined that there are no pairs of channelization codes which can be assigned in pair;

determining whether the flag corresponding to the minimum channelization code number has a value equal to a predetermined value;

assigning a channelization code number if the flag corresponding to the minimum channelization code number has a value equal to the predetermined value; and

repeating the above three steps, after shifting to another sub-tree of the tree structure, if none of the flags corresponding to the spreading factor for the particular sub-tree have a value equal to the predetermined value.

14. (Original) The method according to Claim 13, wherein the predetermined value is equal to zero.

15. (Original) The method according to Claim 1, wherein the optimal channelization code is a channelization code which is available for assignment to the channel in the UMTS while maintaining assigned channelization codes.

16. (Currently Amended) A system for determining an optimal channelization code for assignment to a channel in a Universal Mobile Telecommunication System (UMTS), said system comprising at least one processor capable of executing programmable instructions for performing the steps of:

extending the plurality of channelization codes in the form of a tree structure having a plurality of sub-trees;

determining if a flag of at least one of a plurality of channelization code numbers corresponding to respective channelization codes of a plurality of channelization codes should be set or released;

receiving a spreading factor, if it is determined that the flag of the at least one of the plurality of channelization code numbers should be set;

~~using the spreading factor and the tree structure to determined~~determining the optimal channelization code using the spreading factor and the tree structure,

generating and assigning a channelization code number for the optimal channelization code;
and

setting the flag of at least the generated channelization code number, ~~thereby setting the flag for the at least one of the plurality of channelization code numbers which~~ by includes setting the flag of a channelization code number corresponding to the optimal channelization code and setting the flags corresponding to the channelization code numbers assigned to a particular sub-tree of the tree structure.

17. (Original) The system according to Claim 16, wherein the at least one processor executes additional programmable instructions for performing the steps of:

receiving the spreading factor and at least one channelization code number, if it is determined that the flag of the at least one of the plurality of channelization code numbers should be released;
and

releasing the flag of the at least one of the plurality of channelization code numbers.

18. (Currently Amended) The system according to Claim 16, wherein the step of ~~using the spreading factor and the tree structure to determine~~ determining the optimal channelization code includes performing the steps of:

checking a flag corresponding to an optimum channelization code number of the plurality of channelization code numbers;

determining whether a channelization code of the plurality of channelization codes which corresponds to the checked flag is available; and

identifying the channelization code as the optimal channelization code and proceeding to the step of generating and assigning the channelization code number for the optimal channelization code, if it is determined that the channelization code which corresponds to the checked flag is available.

19. (Original) The system according to Claim 18, further performing the step of generating a message indicating that there is no available channelization code of the plurality of channelization codes, if it is determined that the channelization code which corresponds to the checked flag is unavailable.

20. (Currently Amended) The system according to Claim 16, wherein the step of ~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code includes performing the steps of:

- determining a sub-tree having the maximum value according to a sub-tree value system;
- starting from the sub-tree having the maximum value, checking whether a channelization code of the plurality of channelization codes and corresponding to the spreading factor can be assigned to the sub-tree; and
- identifying the checked channelization code as the optimal channelization code if the checked channelization code can be assigned.

21. (Currently Amended) The system according to Claim 16 20, further performing the steps of:

- determining if there is at least one additional channelization code of the plurality of channelization codes to be assigned to at least one additional sub-tree; and
- checking at least one additional subsequent sub-tree having the next maximum value according to the sub-tree value system, if it is determined that there is at least one additional channelization code to be assigned.

22. (Currently Amended) The system according to Claim 16, wherein the step of ~~using the spreading factor and the tree structure to determine~~determining the optimal channelization code includes performing the steps of:

- determining if there is at least one pair of channelization codes of the plurality of channelization codes in a particular sub-tree of the tree structure which can be assigned in pair; and
- assigning channelization code numbers to any determined pair of channelization codes.

23. (Original) The system according to Claim 22, further performing the steps of:

- checking the flag corresponding to the minimum channelization code number of the plurality of channelization code numbers and to the spreading factor, if it is determined that there

are no pairs of channelization codes which can be assigned in pair;

determining whether the flag corresponding to the minimum channelization code number has a value equal to a predetermined value;

assigning a channelization code number if the flag corresponding to the minimum channelization code number has a value equal to the predetermined value; and

repeating the above three steps, after shifting to another sub-tree of the tree structure, if none of the flags corresponding to the spreading factor for the particular sub-tree have a value equal to the predetermined value.

24. (Original) The system according to Claim 23, wherein the predetermined value is equal to zero.

25. (Original) The system according to Claim 16, wherein the optimal channelization code is a channelization code which is available for assignment to the channel in the UMTS while maintaining assigned channelization codes.

26. (New) A method for determining an optimal channelization code for assignment to a channel in a Universal Mobile Telecommunication System (UMTS), said method comprising the steps of:

extending the plurality of channelization codes in the form of a tree structure having a plurality of sub-trees;

determining if a flag of at least one of a plurality of channelization code numbers corresponding to respective channelization codes of a plurality of channelization codes should be set or released;

receiving a spreading factor, if it is determined that the flag of the at least one of the plurality of channelization code numbers should be set;

using the spreading factor and the tree structure to determine the optimal channelization code, comprising the steps of:

determining if there is at least one pair of channelization codes of the plurality of channelization codes in a particular sub-tree of the tree structure which can be assigned in pair; and

assigning channelization code numbers to any determined pair of channelization codes;
generating and assigning a channelization code number for the optimal channelization code;
and

setting the flag of at least the generated channelization code number, thereby setting the flag for the at least one of the plurality of channelization code numbers which includes setting the flag of a channelization code number corresponding to the optimal channelization code.

27. (New) The method according to Claim 26, further comprising the steps of:

checking the flag corresponding to a minimum channelization code number of the plurality of channelization code numbers and to the spreading factor, if it is determined that there are no pairs of channelization codes which can be assigned in pair;

determining whether the flag corresponding to the minimum channelization code number has a value equal to a predetermined value;

assigning a channelization code number if the flag corresponding to the minimum channelization code number has a value equal to the predetermined value; and

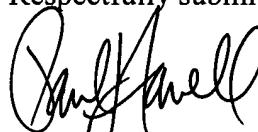
repeating the above three steps, after shifting to another sub-tree of the tree structure, if none of the flags corresponding to the spreading factor for the particular sub-tree have a value equal to the predetermined value.

include the allowable subject matter of Claim 5. Based on at least the foregoing, withdrawal of the rejection of Claims 1 and 16 is respectfully requested.

Independent Claims 1 and 16 are believed to be in condition for allowance. Without conceding the patentability per se of dependent Claims 2-4, 6-15 and 17-25, these are likewise believed to be allowable by virtue of their dependence on their respective amended independent claims. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 2-4, 6-15 and 17-25 is respectfully requested.

Accordingly, all of the claims pending in the Application, namely, Claims 1-4 and 6-27, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicant's attorney at the number given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul J. Farrell", written over a horizontal line.

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